

SIXPENCE

MAY 1944

AMATEUR RADIO

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F.M. LOUDSPEAKER DISTORTION

Readers interested in high quality reproduction are no doubt acquainted with the principal sources of frequency amplitude and transient distortion in the loud speakers. They not be aware however, that there is yet another possible source of distortion which may be termed "frequency-modulation distortion," and which arises when a loud speaker is reproducing a note of high frequency at the same time vibrating with large amplitude at a low frequency.

Cross modulation of high frequencies by a low frequency can occur in speakers with a non-uniform distribution of field in the air-gap, but the distortion which forms the subject of this note is of acoustic origin and would occur even if the speaker had a perfectly linear electro-acoustic response.

The origin of the distortion is the Doppler effect which causes the pitch to rise when the source of sound is advancing towards the listener and vice versa. Imagine a source of sound to be sending out pressure pulses at 100 cycles per second. Taking 1,100 feet per second as the velocity of sound in air, one pulse will have travelled approximately 11 feet towards the listener before the following pulse starts. Suppose now that the source of sound is moving towards the listener at say 150 feet per second.

In the $1/100$ th second between pulses the source will have moved up 1.5 feet so that the distance separating the first and second air waves will now only be 9.5 feet. This is equivalent to an increase in frequency from 100 to 115 cycles per second. Conversely if the source was moving away from the listener it can be shown that the apparent frequency would be 90 instead of 100 c/s.

The case of the loudspeaker radiating two notes simultaneously is not so easy to work out, since the direction and velocity of the "source" is continually changing, but it is easy to see that a 5000 c/s note emanating from a diaphragm oscillating at 50 c/s would have alternatéd groups of 50 cycles increased and lowered in pitch.

Fig. 1. Distortion in a 12" speaker with constant 5000 c/s note modulated by 60 c/s note of variable amplitude.

(a) observed total distortion.
(b) calculated F₁ distortion.

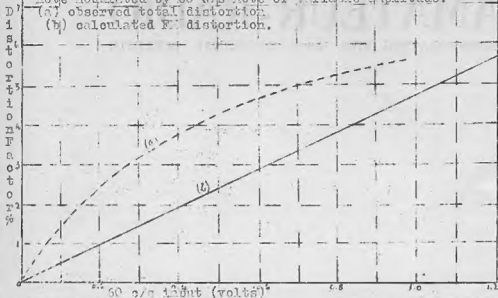
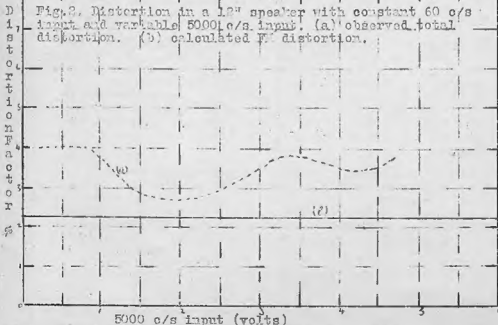


Fig. 2. Distortion in a 12" speaker with constant 60 c/s input and variable 5000 c/s input. (a) observed total distortion. (b) calculated F₁ distortion.



It can be shown that the output under such conditions can be resolved into a carrier and sidebands, the "carrier" being represented by the original unmodulated high frequency note. The sidebands may be regarded as unwanted distortion and the degree of this distortion may be calculated. Experimental verification of the amount of this type of FM distortion is, however, by no means easy, as other forms of distortion are also present. Ordinary harmonic distortion can be eliminated by first taking measurements over the frequency scale with single frequency inputs, but cross modulation due to lack of linearity in the gap is not so easy to separate since the sidebands resulting from this form of distortion are of the same frequencies as those given by FM distortion.

In the case of cross-modulation, however, the distortion should be proportional to the amplitudes of both frequencies but independent of frequency, whereas FM distortion should increase with the amplitude of the modulating note and with the frequency but not the amplitude of the modulated note.

Quality enthusiasts who like plenty of volume have three courses open if they wish to avoid this type of distortion. They can reduce the amplitude of motion of the cone at low frequencies by increasing its diameter or better still by using horn loading, or they can use separate speakers for high and low frequencies.

... Taken from an article in
"Wireless World"

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NEW MATERIAL FOR CAPACITORS

Lectrofilm is a new synthetic dielectric material for capacitors, the development of which was hastened by the shortage of high grade mica. This new material finds application in the manufacture of fixed RF blocking and by-pass capacitors used in communications and other electronic equipment. It is available in both rolls and sheets and can be used in present capacitor production lines with very little change in equipment or method of manufacture.

Its strength, chemical stability and flexibility make it suitable for automatic methods of manufacture since it requires little grading or sorting....."Electronics"

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CERAMIC INSULATED COAXIAL CABLE

A ceramic insulated coaxial cable is available in long lengths up to 3000 feet or more, in $\frac{7}{8}$ inch diameter. Its special advantage is that it is pliable in comparison to rigid cables due to use of soft temper copper...."Electronics"

CARBON RESISTORS

Although carbon resistors in one form or another are perhaps the most commonly used components in radio sets, it is remarkable how little the average amateur knows about the properties of the various types available. The types at present in use in the order of output are (a) Composition rod (b) Composition film, (c) Cracked carbon film.

The composition rod resistor is a cylinder of material consisting of a mixture of Carbon, either graphite or carbon black, or both together with silica or other refractory material and a binder such as thermo-plaster rosin. These are blended in the proportions required to give the desired resistance, moulded into shape and then fired. The resistors are then selected for value provided with leads and then painted. Other insulated types are provided with an outer ceramic tube or are covered with a synthetic resin.

The composition film type of resistor comprises of a film formed by applying a paste containing carbon to a former which may be a ceramic tube or glass rod, and then baking. This film may be spiralled to increase the resistance and that formed on a ceramic rod is then painted with a protecting lacquer. The type produced on glass tube is encased in a moulding material without spiralling.

The carbon film type is becoming increasingly popular and has some superior properties to the two previous types. This resistor comprises a film of pure carbon deposited on ceramic rods or tubes by passing them through an atmosphere containing organic vapours at high temperatures. This process known as "cracking" and hence the resistors are called the cracked carbon type.

The deposit of carbon has fairly low resistivity and the effective resistance of the component may be increased by polishing down the thickness of film or by spiralling by means of diamond or carborundum cutters. Caps and leads are provided and the whole unit protected by lacquer.

The majority of resistors however, have their resistance controlled by the composition of the initial mixture from which the component is made. Due mainly to inherent variations in materials there is a scattering effect about the target value i.e. although a large number of resistors will be near the target value, a proportion will be wide of the mark. It is then necessary to grade the resistors into groups say plus or minus 5% from nominal value or perhaps to a greater tolerance of plus or minus 20%.

The final resistance of a carbon rod type resistor can be controlled by spraying the end of the rod with a ring of copper before covering with lacquer; the width of the ring naturally governs the decrease in resistance.

The resistance of all carbon resistors, will to a certain extent, vary with external conditions. Chief causes of variation are (a) passage of time (b) loading (c) moisture (d) temperature (e) voltage. The accompanying table gives a picture of the magnitude of these changes and a brief discussion of the variations will not be unprofitable.

Due to a packing effect in the carbon particles as they settle down after manufacture, there is sometimes a fairly rapid change in resistance soon after production, but this soon levels out to a slow drift covering the whole life of the resistor. Usually the resistors are not sorted out until sufficient time has elapsed for the initial large change to take place.

The resistance value of a resistor changes during the load and this change is also rapid at first and then decreases in magnitude in a short time. The change is generally greater in the case of the composition film type and least for the cracked carbon type. Composition film type resistors should have a change not exceeding 5 per cent for the first 24 hours or loading and after that only a few per cent per month. The composition rod type will also change to a very similar extent, but cracked carbon resistors should be stable to half per cent, and over a period of several months loading; one or two per cent, should represent the maximum drift.

This load drift will continue, and it is apparent that the time may come when the resistor is outside the permitted tolerance limit. It is therefore clear that the resistor has completed its useful life.

A method of rating a resistor is to base the rating on the surface temperature rise of the resistor. This has some basis in fact since the operating temperature largely causes the resistance changes. These ratings do not differ materially from those usually adopted by manufacturers except that the larger resistors tend to have their ratings reduced while the smaller units have been up-rated. This latter fact may be explained by the fact that a considerable quantity of heat is lost via the leads.

It has been shown that the temperature gradient from the centre to the outside of a resistor is not more than a few degrees. The temperature distribution along the resistor is however, greater, and the temperature rise at the ends is generally 30% less than at the centre. The highest air temperature at which a resistor may be expected to operate is about 60 degrees centigrade, and if a surface temperature rise of 45 degrees C

is adopted as the normal full load working condition, this will then yield a surface temperature of 105 degrees which is generally accepted as highest possible working temperature of a carbon resistor without marked deterioration.

One of the most serious causes of variation in a resistor is that due to moisture. Carbon is very susceptible to water and absorbs it from the atmosphere. In tropical conditions of high humidity the resulting change of resistance may be intolerable...changes of up to 20 per cent from rated values being possible.

Due to the greater delicacy of the resistance element in a carbon film resistor this type can easily become open-circuited. To inhibit this effect, manufacturers protect the resistors by various methods. Composition rod resistors are sometimes covered with a ceramic tube or outer envelope of thermoplastic material. In all cases they are impregnated with wax and painted. The other types are usually lacquered with special water resisting paints. Much work is at present being done on the question of protective lacquers and the problem of a really satisfactory lacquer will probably be solved in the near future. The protection afforded by such a lacquer will greatly decrease the effect of humid conditions on the resistor.

The effect of temperature is almost as serious as that of humidity and in certain cases can be more important. Resistors have a temperature co-efficient which is expressed as a percentage change per degree centigrade rise. In some resistors the curve of resistance with temperature is often irregular, but over a small temperature range the change is approximately linear and it is therefore the practice to regard the phenomenon as a temperature co-efficient. Increase in temperature usually decreases resistance...sometimes up to 0.3 per cent per degree centigrade.

In order to mitigate the effect of high temperatures when it is known that they will work under these conditions it is usual to de-rate resistors and so reduce the temperature rise, but such conditions cannot always be foreseen, and a loss of efficiency results.

A less known phenomenon is the change due to the application of voltage to resistors. This is apparent when measurements of resistance are made by the application of very short pulses of current on a suitable bridge. The co-efficient is expressed as a percentage change per volt DC applied and will vary from 0.001 up to 0.025 per cent. This figure is always negative. These figures appear to be very small, but a resistor may have up to 1000 volts applied and may have consequent variations up to 25 per cent.

One of the most elusive phenomena in resistors is that of noise. On passing a current through the component an increase

of the background noise or hiss is apparent, which does not appear to have any definite frequency characteristic. Associated with this thermal noise is an effect due to transient peaks which is apparently quite independent of the previous noise. The peaks are irregular and occur at irregular intervals. The amplitude of the noise is a function of the voltage applied and is also dependent on the dimensions and type of resistor. With full load the noise may vary from a few micro-volts for the cracked carbon resistors up to a millivolt or so for high values of composition resistors. This effect is naturally important when designing first stages of an amplifier.

The foregoing facts may seem to indicate that carbon resistors as a class are highly unstable, but this is actually not the case. The wide variations will only be encountered in extreme conditions and a good designer will naturally take care to avoid such conditions when designing new equipment. Consideration of the points raised in this article should be of help in this regard.

VARIATIONS OF RESISTANCE VALUE FOR CARBON TYPE RESISTORS

	Carbon composition rod	Carbon Composition Film	Carbon Film Cracked
Ageing	- 5 per cent + 5 per cent	- 5 per cent + 5 per cent	- 1 per cent +
Loading	- 2 per cent +	- 5 per cent +	- ½ per cent +
Moisture	5 percent normally +10 percent for tropical conditions	+ percent normally. + 10 per cent for tropical condit.	1-2 per cent, but with new finishes should drop to 1% max.
Temperature co-efficient in % per degree centigrade	- 0.03 for low values of resistance rising to -0.2 for high values	-0.03 for low values rising to -0.3 for high values	usually from -0.02 to -0.03
Voltage Co-efficient in % per volt DC applied	From -0.01 for low values to -0.025 for high values. Resistors with large bulk tend to have lower co-efficient.	From -0.01 for low values to -0.025 for high values.	Less than -0.01 per cent.
Noise in microvolts per volt DC	Rising to 2 for higher resistance values	Rising to 2 for higher resistance values	Normally negligible

NOTE. The figure given for ageing represent the extreme changes likely to be encountered, and should be halved for the variation over a period of six months.

From an article in "Wireless World"

TECHNICAL LIBRARY.

This month I have chosen for review two books which should find a ready place in the libraries of those Hams who are interested in laboratory work, and since all Hams are supposed to be experimenters this should cover a wide field.

THE RADIO LABORATORY HANDBOOK...H.G. Scroggie (London..2nd Edn)
400 pages , 21/-

This is an exceedingly useful little book (I say little because despite its 400 pages it is pocket size). As Mr. Scroggie explains it is intended for enthusiastic home experimenters and not dull professionals or alternatively for dignified engineers and not just amateurs. Mr. Scroggie would do well in Parliament.

The development of the subject is carried out along logical lines, beginning with a discussion of the aims of a home laboratory and the general outline of the means of achieving said aims, which is followed by a chapter on premises and layout.

Fundamental principles of Measurements are then dealt with leading up to four chapters comprising a comprehensive survey of instruments under four headings...Sources of Power and Signals, Indicators, Standards, and equipment as a whole.

Practical methods of measurement are then described both in relation to components and complete equipment. A special chapter is devoted to UHF measurements and the concluding chapters show how to interpret the results obtained and give a summary of standard abbreviations, symbols and formulae. An Appendix gives constructional information on bridges.

Since Oscilloscopes are a science in themselves, I am also reviewing: - THE CATHODE RAY TUBE AT WORK... John F. Rider (U.S.A.. 1935)...336 pages, 30/-. Although written over eight years ago this book still holds its place in technical literature due to its solid foundation of fundamentals.

The introductory four chapters cover the theory of the CR Tube, sweep circuits, AC on both plates and descriptions of some commercial 'scopes. The remaining six chapters, comprising about two thirds of the book are concerned with practical applications and contain a wealth of information dealing with the handling of the 'scope, the interpretation of the figures obtained and the arrangements and routine for many forms of checks and measurements possible with the C.R. Tube.

Both copies are by courtesy McGills Newsagency..Melbourne.

Alec H. Clyne - Review Editor.

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SLOUGH HATS AND FORAGE CAPS.

True to my contract I'm here again this month, and instead of the job getting easier as time goes on, its getting harder. I know its the same old "growl", but the sooner you chaps realise the fact that I rely on you for the dope to fill those pages the sooner the "Growl" will disappear. Let me remind you that at the moment THE HOOK IS ABSOLUTELY EMPTY, so jump to it and let me have something for next month.

The VK3 Division has received an airgraph from Corporal D. Newton formerly of Castlemaine, and is now serving with No. 3 Squadron R.A.A.F. Central Mediterranean Forces. Cpl. Newton holds an AOCIP but missed his call sign, as his application went in to the RI just four days prior to the outbreak of hostilities. He writes that he is receiving copies of Amateur Radio "and believe me, it's tops...Although I am engaged in radio maintenance in the RAAF I am still keen to join the Ham brigade after the war. Keep AR rolling this way, its hopeless trying to obtain English radio dope in Italy."

Cpl. L. Gravette a new member of the VK3 Division writes from New Guinea, and to quote his own words "until recently had not heard of Amateur Radio and realises I have missed a very interesting publication. (Everyone must find that out sooner or later OM...Ed)

Jack Coulter 3MV writes from H.M.A.S. Milgura and advises that P.O. Telog who accompanied him to a recent meeting gave him a shock recently, Jack had hold of a HT load when the juice came on...1500 volts of it...However they managed to enjoy some Xmas cheer...two bottles of it...After passing his 2nd class ticket recently, Jack is now looking forward to his first.

Sgt. G. C. Mikkelsen 3XV has been on leave from his unit (I think he may have been married recently). He is moving to school of Sigs at Bonagilla to complete officers course, having already done eight weeks at Woodside S.A.

A letter arrived recently at the Vic Divs. address addressed to Lieutenant Worboys. With the aid of the phone book we were able to find his address and forward the letter on. (The P.M.G. have nothing on us...Ed.) An acknowledgement has been received and we find that Lieut. Worboys is an officer of the British Army at present serving with 3 Aust Corps. He was at one time interested in Radio in the Argentine and wishes the Institute every success in the cause which Amateur Radio has been so great a help in war time and in peace in fostering world understanding between peoples.

Sgt. T. F. Lamb A.I.F. was present at the April meeting of the VK3 Div. He is now an instructor at L.H.Q. School of E. & M. E. at Ingleburn.

A welcome note comes from F/O J. G. Golley better known to you as VK3QZ. He is among those who use a Townsville address, which seems to cover a multitude of places, in this case the Group is 991. Very nicely he mentions that Amateur Radio is the link that continues to bind the Hams together, though they are now scattered to the far corners of the globe...so you misers who hoard your news and send it not to your column....

And now all other States but VK3 please sit up and take notice he says, and like the Yanks, I quote, "just to keep alive the friendly spirit of rivalry, a VK3 was one of the first Australians to set foot on New Britain. I might add that pride was one of the last things he was thinking about at the time, and dignity, in the face of enemy day and night bombers was entirely forgotten"...and so all you other States the game is down...what about it???

He mentions meeting an Army Captain at Canberra who said that Snow Campbell 3MM was captured while he was attached for Army Co-op work. During a heavy dust storm he drove a truck into Enemy lines....I wonder what Snow said. Hi!

QSP to 3CB...thanks for the Newsies for Sid Clark, om. They arrived here the next day, which made eight days from Melbourne to Sydney, so they no doubt walked over with them. I sent them on to Sid. Hope you stay longer next trip up this way.

Had a letter from Sid Clark, and he cheers me up very much. I have always regretted that the Navy was not represented in our honouring, but lo, and behold, he says both the Navy and Air Force up his way wear Slouch Hats, so my mind is now at rest. Hi! H.M.A.S. Lonsdale please forgive. Hi!

Sid mentions that 3DJ is a Sergeant in a Radar unit near him. W7EZX is not another W ham who goes to make up their occasional Ham roasts. Just quietly, Sid the mess they made of your letter with a pair of scissors was just a shame. Hi.

VK2NO, VK2LZ, and VK2AL have all been or leave in Sydney, but I have not to get some news from the last two. Don 2No is a pretty regular correspondent, but after his newspaper experience no doubt he has a fellow feeling for those of chase the elusive news.

Peddie Eaton well known to you all as VK2BX. I regret to state was killed with the WAAF quite recently. When I think of the DX cards that were always coming through for him he will sure be missed over the air. And so, yet another of our chaps has given his life for us all...VW, Pedd, om...may the ARM be nil and DX even better than you made it down here.

The RSGB Bulletin of February reports that VK2DQ F/Lt Dudley Mourse was, at the beginning of January an inmate of R.F.F. Hospital No. 5 M.E.F. recovering from a "Prang" which put him into plaster for some weeks.

And last but not least the QRA to send your notes is J. B. Gorbin VK2YC...78 Malenoy St., E sticks.. or better still the phone number is LU 1092....so what about it?????

DIVISIONAL NOTES

FINANCIAL REPORTS

Quite a number of entries have been received for F.I.'s Contest Competition, Post War Amateur Radio, for the Executive have been impressed with the soundness of some of the views expressed, so much so that it has been decided to extend the closing date until 30th June. F.F.I. would like to have a few more entries from VLS and also from that enthusiastic bunch of fellows in VK6 who are doing such a fine job keeping the Institute flag flying in Western Australia. Probably the majority of entries received to date have come from New South Wales. This competition is Australian wide in view of the views of Australia.

Just scanning briefly a few entries, one Ham is very strongly in favor of three times or more of the A.O.C.S. similar to the American idea. All entrants are of the opinion that the I.I. should have a permanent staff. Another feels that the whole of Australia should be zoned with the I.I. as a controlling body. From the above you will see that quite a deal of thought has been given to the subject, but want more views, so common VLS and VK6 are all the other States and Servicemen. Don't forget the now closing date, 30th June 1944. Don't just say what you think. Put it down on paper and help remould Australian Experimental Radio.

Recently several VLS members have been sent once in US states for meritorious conduct. It is felt that at sometime or other amateurs from every other state in the Commonwealth have also been honored. If you know of any experimenter who has been honored or received any commendation whatsoever, please forward particulars - newspaper cutting if possible - to the Postal Secretary, Wireless Institute of Australia, 21 Tunstall Avenue, Kingsford, N.S.W.

N.S.W. SOUTH WALES DIVISION.

The April General Meeting of the Division was adjourned to May in view of the presentation that was to take place at P. S. Headquarters the same night.

Members will join with Council in expressing sympathy to George Wilson VK2. who has just lost his wife in tragic circumstances, and to our Chairman, Mr. Leslie VK2L who recently suffered the loss of a near relative.

With reference to the Exhibition and Equipment Building Contest announced in the Special Bulletin, forwarded to members last month, kindly note that it will now be held in the Cafeteria, N. S. W. Buildings, and not Room "K" as mentioned previously.

Some Members have queried the entrance fee of £/6/- for each Exhibit, but it should be taken into consideration that the prizes

to be won, viz - War Savings Certificates to the value of £5 for first, £3 for second, and £1 for third, are good prizes and really worth striving for. Council realises that the Exhibition will not compare with those of pre-war days, but hopes that quality will replace quantity, hence the value of the prizes. Our old friend Joe Head VK2JR has been approached to act as one of the judges, and if Joe doesn't know his radio, well - no one does. So get going fellows.

The May General Meeting of the Division will be held at N.M.C.A. Buildings on Thursday 18th May, and a cordial invitation is extended to all Amateurs to be present.

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EMERGENCY COMMUNICATION NETWORK.

Well, well, well. What a night! Something to be remembered and talked about in the future. What night was this, asks you in bewilderment. Why the presentation of the Trophy of course. And the winners, Concord.

As previously mentioned, the Department of National Emergency Services had made available their Lecture Hall and arranged a function in conjunction with the presentation of the E.C.N. Cup - a task that the Director Mr. R. Hicks had very graciously consented to carry out.

The D.O.C.(W). W.G. Ryan VK2TI opened proceedings by welcoming the Director, Mr. R. Hicks, the State Operational Controller, Colonel F. Lorenzo D.S.O. Skipper Small, Commanding Officer, Sydney Harbor Patrol and a special welcome to two American visitors, Jim Dimmock and Al Stansfield.

Two short talkies were then shown and then the important business of the evening took place, namely the presentation of the Trophy. The Deputy Controller dealt briefly with the performances of the various stations and then called upon the Director to make the presentation and G. Cole VK2DI briefly responded on behalf of Concord. The Director in his remarks praised the work of the Network and the efficient manner in which traffic had been handled and praised the work of all operators concerned. He also extended a welcome on behalf of his Department to the American visitors. The Director was followed by the S.O.C. Colonel Lorenzo D.S.O. who endorsed the Director's remarks and stated that when endeavoring to arrange co-ordinated practices he had been informed that a certain Thursday in the month was sacrosanct as far as the W.I.A. was concerned, and that it was known the world over as the meeting night of the W.I.A. Seeing the Americans present, he realised that this had been no idle boast.

The Deputy Controller (W) in reply, thanked both speakers and stated that recently the Institute had been in receipt of a letter from the Minister for N.E.S. thanking it for the work done in Civil Defence. VK2TI said that whilst he, on behalf of the Institute, appreciated the Minister's sentiments, felt that it should be the W.I.A. thanking the Minister for the opportunity given to those

"Hams" who had to stay behind, to do a job in Civil Defence and back up their brothers on Active Service.

The second half of the programme was then proceeded with and upon conclusion a vote of thanks was accorded Miss Allen, the projectionist, for the splendid programme she had put on that evening. All those present then adjourned to the Dining Room where supper was partaken. It was truly a very enjoyable evening, and we must not forget the ladies who did so much to help.

At last it has been found possible to co-ordinate Group Control and Radio Practice Nights. Previously the Network had been practicing as a signal unit and thereby lost the benefit of working in conjunction with the Group Controls to which they were attached. Commencing Monday 1st May, practices will be held once a week on alternate Monday and Tuesday nights, and from what we can hear, the band will be reminiscent of Yankee Fone Contests in "the good old days" (?)

With the commencement of the new Exercises another Competition will be held, the Trophy on this occasion being donated by the Department, but although the Exercises will commence on 1st May, it is not proposed to start the competition until a few weeks later.

Earlier we mentioned the presence of Skipper Small of the Sydney Harbor Patrol. You may have wondered why. The Sydney Harbor Patrol is a branch of the N.E.S. organisation who are doing a great job patrolling the Harbor. In the past, their work has been hampered by the lack of two way Radio Communication. As a result of the Network Test, held on 12th December last, and the splendid showing made by Operators, it has been decided to equip the boats with Radio.

The boats will work with both the Police and N.E.S. using two U.H.F. channels that are not very widely separated. To change from Police to N.E.S. it will be only necessary to flip the crystal switch. Several comprehensive tests have been carried out on the Harbor, and there is no apparent difference in signal strength at Control. Reminded one of Dx Contests when we used a couple of crystals and peaked the transmitter midway between each. Shore ship transmissions will be made on a medium wavelength. Funny isn't it. When we started off we were in trucks, now we're in the Navy! A link will be provided between Maritime Control and Central, VL2JJ doing this job. The whole of the Shore installation will be in charge of Training Officer, Charles Fryar, VK2MP.

Skipper Weingott of the Harbor Patrol has a keen bunch of lads under his control, all very anxious to have the Radio installed, and has expressed a wish that they be permitted to participate in our Competition and has challenged the Network. What do you say boys?

In addition to the expansion of the Network to embrace the Sydney Harbor Patrol, it has been decided to link two large coastal industrial towns. This will mean real Dx for several lads. More about this later.

I think it is safe to say that every clear thinking Australian Experimenter is proud of the Network and the work that it is doing. The fact that it is expanding whilst some overseas organisations of a similar nature are exhorting their personnel not to lose interest, is a wonderful tribute to the VK amateurs, and also to the foresight to the Government of New South Wales.

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VICTORIAN DIVISION

Members, non-members and friends alike are advised not to miss the next meeting of the Victorian Division. Mr. F. T. Stagg, now discharged by the Army, has consented to come along, circumstances permitting, and give a talk, with photographs. Mr. Stagg, although not a Ham, was connected with an army broadcast station in the Middle East. This should prove very interesting, and it is hoped that members will rally around and provide a good attendance, in this way showing appreciation of Mr. Stagg's offer. The date of the meeting will be Tuesday, 6th June.

We have been advised by F.H.C. that the date of the Essay competition has been extended until 30th June. Very few entries have been received from VK3 members. This is rather serious. F.H.C. have put on this competition in your interests, and it is up to VK3 members to help this competition along with their ideas of post war Ham Radio. So chaps jump to it and send your entry as soon as possible.

The April meeting saw a visitor in the person of Jim Potts VE3HI who hails from London Ontario, Canada. Jim is out here to do some in connection with the Army. At the meeting he gave a talk on the Canadian aspects of pre and post war Ham Radio, which was very much appreciated by the gathering.

The possibilities of a Radio Communications Network are still being considered by the authorities, and from information received by Council, the prospects are very good. Last month a demonstration of traffic handling was given by the Hamilton Hams in that town, to the Western District Bush Fires Brigades Conference. The gathering was very much impressed. Tim Wells 3TW was the leading light in the staging of this demonstration. It is hoped that the services of the members will be required in the very near future. By the way, the scheme put up by the Institute was given prominence in the State news service from National Stations recently.

Inquiries have been received regarding the A.O.P.C. examination. The exam is held every six months, on the first Tuesday of March and September. Further information may be had from the Radio Inspector.

THE WIRELESS INSTITUTE OF AUSTRALIA



Divisions of the Wireless Institute of Australia exist in every State of the Commonwealth. The activities of these Divisions are co-ordinated by Federal Headquarters Division, the location of which is determined from time to time by ballot.

Present location of F.H.Q. :— New South Wales

Federal President : F. P. DICKSON, VK2AFB.

Vice-President : H. F. PETERSON, VK2HP. **Federal Secretary :** W. G. RYAN, VK2TI.

Councillors : C. FRYAR, VK2NP ; W. J. McELREA, VK2UV

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VICTORIAN DIVISION

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First Tuesday in each month at W.I.A. Rooms,
191 Queen Street.

Visiting Overseas and Interstate Amateurs are welcome at meetings and they are invited to communicate with the Membership Secretaries :

T. D. HOGAN .. VK3HX .. UM1732

J. G. MARSLAND VK3NY - WF3958

NEW SOUTH WALES DIVISION

Registered Office :

21 TUNSTALL AV., KINGSFORD

Telephone : FX3305

Postal Address : Box 1734JJ, G.P.O., Sydney

Meeting Place

Y.M.C.A. BUILDINGS, PITT ST., SYDNEY

President : R. A. PRIDDLE, VK2RA

Vice-Presidents : H. F. PETERSON, VK2HP ;
E. HODGKINS, VK2EH.

Secretary : W. G. RYAN, VK2TI

Treasurer : W. J. McELREA, VK2UV.

Councillors : N. GOUGH, VK2NG; E. TREHARNE,
VK2AFQ; P. DICKSON, VK2AFB; C. FRYAR, VK2NP;
R. MILLER

Subscription Rates

Full Members	10/6 per annum
Service Members	7/6 per annum

The N.S.W. Division meets on the third Thursday of each month at Y.M.C.A. Buildings, Pitt St., Sydney and an invitation is accorded to all Amateurs to attend. Overseas and Interstate Amateurs who are unable to attend are asked to phone the Secretary at FX3305.

WESTERN AUST. DIVISION

C.M.L. Buildings,

ST. GEORGE'S TERRACE, PERTH

Postal Address : BOX N1002, G.P.O. PERTH.

Secretary : C. QUIN, VK6CX.

QUEENSLAND DIVISION

Box 1524V, BRISBANE

SOUTH AUSTRALIAN DIVISION

Box 284D, ADELAIDE

TASMANIAN DIVISION

BOX 547E, HOBART